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ORIGINAL COMMUNICATIONS.

OBSERVATIONS ON PUERPERAL FEVER.

By DE LASKIE MILLER, M. D., of Chicago.

Being a portion of the Report of the Committee on Obstetrics, read to the Illinois State Medical Society. May, 1864.

The prevalence of *Puerperal Fever* in certain localities within the State during the past year—the diversity of opinions entertained by the profession upon the nature of the disease—its communicability and its treatment, are reasons sufficient for making at least a brief allusion to it, in the report of your Standing Committee on Obstetrics.

More than ordinary interest attaches to the history of this disease, from the fatality which has attended its prevalence wherever it has appeared in an epidemic form, and the antagonistic views which have been entertained in regard to it. And yet these reasons would not justify your Committee in occupying the time of this meeting, with considerations relating to it, if the leading minds in the profession were, at the present day, agreed or nearly in harmony in regard to two important points, viz., its communicability from the attendant

or others, to the parturient, and upon the most successful plan of treatment. But, unfortunately, upon these points the most opposite opinions are held and taught by medical men.

The terms employed to characterize the disease, as it has prevailed at different times and places, give us some idea of its severity, such as "fatal malady"—"terrible"—its name is "a word of fear"—"appaling," etc., and the statistics which have descended to us, prove that these phrases were not the expressions of a poetical fancy. "While mortality in London is about 1 in 150, and in Lying-in-Hospitals varies from 1 in 70 to 1 in 100, the mortality in the Hôtel Dieu and in the Maternité was 1 in 20, sometimes 1 in 13, chiefly caused by puerperal fever. The mortality in the great Vienna Hospital was as high as 1 in 10, and even 1 in 6."

In London, in 1761, the mortality was so great that in some of the smaller Lying-in-Hospitals, they buried two women in one coffin to conceal their loss. The course of the disease was similar in most other cities of Great Britain and the Continent; the statistics of which would be out of place here, by taking too much space, without elucidating any practical principles.

A more interesting, and possibly useful, object would be attained by passing in hasty review, the diverse opinions which have at different times been entertained of its nature, and the various modes of treatment which have been adopted therefrom.

Strother, in 1716, was the first to apply the epithet "*Puerperal Fever*" to this disease, but there is reason to doubt whether he entertained more correct or definite ideas of the nature of the disease, than had his predecessors, who, under the general term "*Child-bed Fever*," were in the habit of referring to most of the diseases of the puerperal state.

The disease broke out as an epidemic in Paris, in 1746; and at the Hôtel Dieu it prevailed with such fatality, that it is asserted scarcely any recovered, and from this time we may date our first reliable history of it. Malouin has given an accurate

and faithful account of this epidemic. Tenon's description, given many years later, states that the disease had become naturalized, for from 1774 to 1816, seven out of every twelve women delivered were seized with the disease.

Among the earliest accounts of the treatment adopted in the disease, we find that of Doulcet, who relied entirely on emetics, and it is affirmed saved several patients, and upon this he supposed that he had discovered the specific. This is not the only instance in the history of medicine in which subsequent experience has failed to sustain the claims of the discoverer.

In 1768, Denman advised depletion on the first onset of the attack, and tartar emetic to cause vomiting afterwards.

Dr. Hulme, in 1772, claimed the honor of discovering the cause of puerperal fever. He considered inflammation and gangrene of the omentum, as the essential disease, with some deterioration of the blood. He observes, "But the most capital of all remains, I mean, to cut off the purulent fomes, the chief cause of the disease, and to restore the tainted omentum and intestines to somewhat of their perfect state."

Dr. Gordon, of Aberdeen, in 1792, believed the disease to be an inflammation, but of the erysipelatous type. He advocated strongly, bold and early depletion, 20 or 24 oz. at once and if necessary 10 more soon after. "When I took away," he says, "only 10 or 12 oz. of blood from my patient, *she always died*—but when bled freely she never failed to recover."

Mr. Hey, in 1812, resorted to active purgatives, but these proving unavailing, he was induced to resort to Dr. Gordon's plan, taking frequently from 30 to 40 oz. and even 50 oz. of blood, and it is affirmed with good success.

Dr. Armstrong, in 1819, also followed the depleting plan, by venesection and calomel purges.

Dr. Gooch relied on venesection, leeching, and cathartics.

In 1823, Dr. Copland was in charge of Queen Charlotte's Hospital during the prevalence of puerperal fever, and from the failure of the systems of treatment then in vogue, he

adopted a *stimulating* plan. On the first appearance of the symptoms of the malady, he administered from 8 to 16 grs. of camphor, combined with from 10 to 20 grs. of calomel, and from 1 to 3 grs. of opium, and repeated this every 4, 5, or 6 hours. Soon after the second dose of the medicine had been taken, half an ounce of spirits of turpentine, with castor oil, was administered, the stimulent and anodyne being still continued, and counter irritants applied to the abdomen. The success of this course, he assures us, in the malignant form, was almost complete.

Without intending to elaborate the subject in all its phases, three topics will claim attention at the present time. The nature—the communicability—the treatment.

What is the nature of *Puerperal Fever?* Here we meet a most important question, for not only the treatment of the disease, but in numerous instances, the immunity of the patient from the disease, will depend upon the views which the physician may entertain. Is the disease essentially a phlegmasia? Changes are frequently met with in *post mortem* examinations, in some one part of the system or another, having the semblance of the results of inflammation, but they are not uniform in their location or appearance, and they are sometimes absent altogether, no one of which being constant. If the disease depends upon inflammation in some organ, of course, when the local inflammation is *absent*, the puerperal fever can not be *present.*

The testimony of those who have had the largest experience in treating this disease, and the best opportunities to observe its effects upon the system, concur in one particular, viz., that cases are met with in which no morbid appearances can be found in the tissues after death. Then common inflammation is not essential to the existence of the disease.

The disease may run its course with such rapidity as to destroy the patient in a few hours, like Armstrong's "congestive disease," and Mackintosh's "latent peritonitis;" but do not terms like these deceive the observer, by leading him to sup-

pose that he comprehends the case, while he remains innocent of the slightest idea of the true nature of the malady? are we not sustained in this supposition by what has been already collated? What could be more opposite than the depletion of Gordon, Hey, and Armstrong, and the stimulation of Copland, each claiming to treat the same disease.

The fallacy consists in not recognizing a new element in puerperal fever, not found in ordinary inflammation, which renders its nature essentially different from peritonitis, phlebitis, metritis, etc., etc. The new element, we are led to believe, is a poison in the blood, producing its septic influence there—and through this medium producing changes sometimes in the tissues of important organs. That the disease is truly zymotic. Its history observes the laws of all poisons.

1st. It is a uniform disease; the description given of it an hundred years ago, describes the disease of to-day equally well.

2d. It selects a tissue for its seat, viz.,—the serous membranes and tissues analagous to them.

3d. The definite action is in the blood, the quantity of fibrine is increased, its quality is deteriorated.

4th. The action of the poison is modified by the quantity introduced into the circulation. When it is in excess, the patient may die suddenly, without leaving any local manifestations of its presence. I am familiar with Dr. A. Clark's observations in regard to the valves at the extremities of the uterine sinuses, and the appearances of inflammation there in puerperal fever. But these appearances have not always been detected by other observers. When the poison is in less quantity its course is less rapid, and is followed by local changes.

By this view we are enabled to account for the diversity of opinions which have been promulgated of the nature of the disease. When partial or erroneous views are entertained of a disease, the observer will note the appearance of the individual case as representative of the class, and the account will

therefore vary with each case examined, whereas, if the disease depends upon a *matires morbi* in the blood, accidental causes may determine in which organ, if any, the local changes are to be found.

It would be interesting to trace this poison to its source, and describe in detail the mode of its communication, but we can do little more than state conclusions.

1st. It may originate within the system, from the decomposition of organic matter.

2d. It may be introduced from without, by exposure to diseases characterized by ichoræmia, or,

3d. It may be communicated by the attendant, who is the vehicle of transportation from a distant case.

Notwithstanding evidence as irrefragable as can be produced to prove the contagiousness of any disease, is abundant upon this, still it has been maintained in a most positive manner that *puerperal fever* is not communicated thus, and this position is defended by rare eloquence, and a personal experience of many years is referred to as confirmatory of the position.

Suppose a physician in extensive practice is frequently called in consultation in cases of puerperal fever, and has no communicated the disease to his patients, what does it prove? Merely that a contagious disease is not necessarily taken by exposure. This is not peculiar to puerperal fever, for then would the prevalence of scarlatina, measles, small-pox, etc., rapidly become general upon the breaking out of the disease. No system could resist the power of the contagion; but what physician, that has practiced for any considerable time, has not known some of these diseases to affect a single member of a family, while all the others escaped? A single case coming within the knowledge of the reporter will be detailed briefly, as representative of many similar ones that might be collated from other sources.

A physician had been engaged to attend a lady in her first confinement, whose gestation had been remarkably free from every annoying symptom; she was educated, and refined in

manners, and occupied a position in society, that would induce any physician to be vigilant that no accident should occur, to compromise her recovery.

This physician was called in consultation to deliver a placenta which had been retained, a long time after the birth of the child. Without much difficulty the decomposing and fetid placenta was removed; the hands of the operator were washed in soap and water with care; still the noxious odor adhered to the surface most tenaciously. In the night following, this physician was called to attend the lady referred to. The labor was perfectly natural, and by no means severe, but in twenty hours from the time of delivery, she was attacked by a severe chill, followed by high febrile movement in the system—tenderness of the abdomen—tympanites, and arrest of the lochia; and although treatment was commenced promptly to arrest the progress of the case, the effort was unavailing, for the patient died on the second day after the chill.

This patient was perfectly healthy; no accident occurred during or subsequent to labor, to account for the attack, yet she died of puerperal fever. Did not that physician have reason to feel that he had communicated the poison to his patient which caused her death? If this were a solitary instance he might not censure himself, but when we remember that many cases are on record, similar in every essential particular, the case is quite different.

How is the contagion communicated? through the atmosphere from patients affected with puerperal fever, erysipelas-gangrene, etc.; by the clothing; from the surface of the body, by the breath of the attendant. That the disease is communicable in the manner indicated, your Committee entertain not the slightest doubt; and they feel called upon to state emphatically their convictions, more especially as medical works written in a most fascinating style, inculcate an opposite view.

This leads to the conclusion that preventive means are never to be lost sight of by any one engaged in obstetric practice. The danger of communicating the disease should at once

suggest the impropriety of placing parturient females contiguous to any of the diseases which we have indicated, as liable to communicate puerperal fever. A recognition of this principle would render the propriety of constructing large lying-in hospitals, or appropriating extensive wards to the reception of lying-in women, more than problematical. During the time of the writer's visit to Edinburgh, last fall, which was one of great interest, puerperal fever was prevailing there, and whenever it makes its appearance, as it frequently does, in the Royal Infirmary, it is of sufficient gravity to give rise to the greatest anxiety in the minds of the accomplished and skillful physicians having charge of the institution, and we could but feel that a lying-in woman, in a cabin, with barely the necessaries for the emergency, might well be envied by the occupant of a large ward, when the disease is prevailing.

Then what is the duty of the physician, in private practice, during an epidemic of the disease? If engaged at all in obstetric practice, manifestly to relinquish all cases of a zymotic nature, and should the disease appear in his patient, to decline further calls of that nature. A physician is not at liberty to expose the unsuspecting to the danger of this disease, and it is difficult to understand, how those who disregard these principles, can satisfy their consciences while violating these conditions.

It is not our intention to prolong this report by a criticism on the various modes of treatment which have, from time to time, been recommended, further than to raise the question of the propriety of abstracting large quantities of blood in the treatment of puerperal fever. Can a disease be removed from the system by venesection, when the whole volume of blood is affected, and has the power of reproducing itself? If we believe this disease belongs to the class of zymotics, the answer is unhesitatingly, no. Nor shall we detail minutely the plan of treatment which has, under our observation, been most successful. We can at most give only an outline sketch nor would more than this be desirable at the present time.

The plan may be indicated under three heads, viz., 1st. Neutralize the *matires morbi* in the system, in the uterus, and in the vagina.

2d. To eliminate the disintegrating and effete materials from the system.

3d. To support the vital forces of the system.

The most efficient agents for fulfilling the first indication, yet brought into requisition, we believe to be *chlorine* and *bromine*. The former we have already used sufficiently to enable us to speak with confidence of its good effects. In regard to the latter, from a limited experience with it, we are led to hope for the most satisfactory results. These remedies are valuable in every stage of the disease, and especially indicated when the discharges are profuse or offensive. Locally, they may be applied in solution or used in the form of vapor. Applied in either form they are efficient in proportion to the completeness with which they come in contact with the source and seat of the disease. They are to be introduced not only into the *vagina*, but also into the cavity of the *uterus*. We are far from advising a reckless system of intra uterine injections, but introduced with proper precautions, experience in a few cases, has proved them to be not only harmless but highly efficient agents. The mode proposed is, first to wash away all offensive discharges, at least as completely as practicable, then convey the remedy, properly diluted, to the part, gently through a suitable tube. If vapor be used it may be conveyed to the part by the same apparatus.

The use of chlorine in this disease is not new. It has been demonstrated to be, in this and other diseases, not only a deodorizer but a valuable disinfectant.

The local use of bromine in the treatment of puerperal fever was suggested from its acknowledged value as a remedy in erysipelas, hospital gangrene, etc.

The *second indication* can best be fulfilled by the use of remedies, believed to possess the power of preventing or arresting the septic influence of the poison, already circulating

with the blood, such as the mineral acids—chlorine salts—the bromides—the sulphites of lime and soda, etc.

To effect the third object, anodynes hold an important place, not only to relieve pain and irritation, but in full doses to arrest the rapid tissue metamorphoses that would take place without their use; with these, tonics are indispensable, but several of the most powerful tonics have been already indicated to fulfil the second indication; nutritious diet is indispensible, and in many cases stimulants can not be dispensed with.

Thus far it has been our object,

1st. To bring into immediate contrast, the diverse views which have been entertained of the nature and treatment of this disease.

2d. To express our belief that it is essentially zymotic in its nature.

3d. That it is communicable by the attendant as well as by other means, and

4th. To direct attention especially to the value of *Chlorine* and *Bromine*, not only in limiting the spread of the disease, but also as curative agents.

THE ILLINOIS STATE MEDICAL SOCIETY.

COMMITTEE ON DISEASES OF THE EYE.

The Committee would most respectfully request members of the Society and of the profession generally, to contribute the report of important cases, and papers upon any subject in Ophthalmology. The chairman of the Committee would respectfully solicit the record of all facts relating to epidemics of Conjunctivitis in different parts of the State—the condition of the atmosphere and soil, the habits and occupations of the patients, and the severity and number of cases. He would also solicit the history of cases of injury of one eye followed by sympathetic ophthalmitis in the other eye.

E. L. Holmes, Chicago. R. E. McVey, Waverly.
J. S. Whitmire, Metamora. F. B. Haller, Vandalia.

CLINICAL LECTURES ON DISEASES OF THE EYE.

By E. L HOLMES, M. D., of Chicago,

Lecturer on Diseases of the Eye and Ear in Rush Medical College, and Surgeon of the Chicago Charitable Eye and Ear Infirmary.

THE CHOROID—ANATOMY AND PHYSIOLOGY.

Gentlemen :—The study of this membrane, especially as affected by disease, has been rendered much more satisfactory and interesting by the discovery of the ophthalmoscope. Abnormal changes of the choroid, observed by the aid of this instrument, during life, and further investigated by the microscope, are now much better understood than formerly. The classification of diseases is consequently more scientific and practical. I will endeavor to present to you the most important facts as now established.

The choroid is quite a thin membrane, having the retina on the inner, and the sclerotic on its outer surface. It is divided into two distinct portions. The first is a narrow band two or three lines wide, known as the ciliary body, and is situated in front of the anterior portion of the retina; the second, and by far the larger portion, is situated posterior to this border, and is called the true choroid. Throughout nearly the whole extent of this portion, it is quite loosely attached to the sclerotic and retina. It is firmly joined to the covering membrane of the optic nerve, where this nerve pierces it. It is also firmly attached to the retina at its anterior border or ora serrata. This latter attachment is so strong that the retina may be separated by serum from the choroid and yet hold firmly to the choroid along this border. The true choroid may be divided, according to some microscopists, into five distinct layers: 1st. A layer of pigment lying upon the inner sur-

face of the sclerotic; 2d. A layer of larger vessels; 3d. The capillary layer; 4th. An extremely delicate transparent layer, and, 5th. The inner pigment layer. All these layers together are only 1-30 to 1-20 of a line in thickness.

The substance of the choroid is composed of the star and spindle shaped cells, with their anastomosing appendages, of which I have spoken, in describing the other tissues of the eye. Throughout the whole extent of the choroid, the pigment cells are quite abundant. The inner layer, upon which rests the retina, is almost wholly composed of this pigment.

The ciliary portion of the choroid is a narrow band, thicker at its anterior than at its posterior edge, lying between the anterior border of the retina and the periphery of the iris. Its general structure is similar to that of iris and true choroid, although it possesses less pigment. Its inner surface is corrugated into seventy or more folds, which are a continuation of the corresponding folds on the posterior surface of the iris. These are called the ciliary processes. Like the iris, this portion of the choroid contains two series of muscular fibres, the circular and the radiating, the relation of which to the function of accommodation of the eye to vision at different distances will be explained at a future time. At the ora serrata the true nervous structure of the retina ceases. The retina passes farther forward, however, in the form of a delicate, transparent, almost structureless membrane, which is quite firmly attached to the anterior edge of the true choroid and inner surface of the ciliary processes. As it approaches the periphery of the lens, it divides into two distinct layers, the inner one being attached to the posterior surface of the capsule of the lens, near its periphery, and the outer layer being attached to the anterior surface of the capsule. Between the layers and the periphery of the lens is the canal of Petit. This structure is the suspensory ligament of the lens, and is called the zonula of Zinn. Its function is intimately related to the accommodation of the eye to distinct vision, at different distances.

The choroid is principally supplied with blood by about twenty very minute branches of the ophthalmic artery—the posterior short ciliary arteries, which pass through the schrotic into the choroid near the optic nerve. These arteries supply also a small portion of blood to the ciliary processes and iris. The anterior ciliary arteries, which enter the globe a few lines posterior to the periphery of the cornea, give their blood principally to the ciliary portion of choroid and iris. The two long ciliary arteries enter the eye quite near the optic nerve and pass forward between the schrotic and choroid, one on each side of the globe, to the ciliary band and iris.

There are two series of veins in the choroid, one of which follows the general course of the ciliary arteries; the other is composed of five or six veins, which leave the eye half way between the optic nerve and cornea and at equal distance from each other. Each of these veins receives its blood from a series of smaller veins radiating around it like the spokes of a wheel, which are called the venæ vorticosæ.

The nerves of the choroid are the long and short ciliary nerves, composed of filliments from the third and fifth pair and from the sympathetic. These nerves pass through the substance of the choroid and are distributed almost wholly to the ciliary band and the iris. Some anatomists state that there are microscopic branches and nerve cells supplying the true choroid.

The pigment of the choroid, as also of the iris, is intended to absorb diffused light and thus render images upon the retina more distinct, as for the same purpose tubes of microscopes, telescopes, and the camera of the daguerreotypist are blackened upon their inner surface. Whenever this pigment is less abundant than it should be, as in the albino, vision is almost always indistinct, and the patient is dazzled by ordinary light.

The iris, ciliary band and true choroid, sometimes called the sweal tract, may be considered as parts of one organ, the

common function of which is the nutrition of the intraocular tissues. In addition to this common function, the iris, as we have seen, regulates the amount of light which enters the eye, and the ciliary bodies and zonula and zinn change the focus of the eye as it is fixed upon near or distant objects. The precise manner in which this process of nutrition is performed is not in all respects well understood. The aquious humor is undoubtedly the product of the iris and ciliary bodies. Diseases of the choroid often produce opacities of the lens and vitreous humor, and long continued inflammation of this coat of the eye is certain to terminate in atrophy of the globe. Diseases of the choroid, therefore, become of great importance to the student of ophthalmology.

An accurate diagnosis of these diseases often requires the assistance of the ophthalmoscope. For this reason you should bear in mind the normal appearances of the choroid as seen with this instrument. The rays of light reflected by the ophthalmoscope upon the transparent yet quite vascular ritina and the pigment layer of the choroid gives the characteristic yellowish red color of these tissues. The vessels of the choroid are usually covered by the pigment layer, and of course are not seen. In the negro, and individuals with dark skin and hair, the choroid contains more pigment, as seen by the darker shade of color revealed by the ophthalmoscope. In the albino, and individuals with light hair and skin, the color is much lighter, and there may be so little pigment that the choroidal vessels may be seen as broad, yellow lines, beautifully curved and looped together.

It should also be remembered that old age, as it removes the pigment matter from the hair and wrinkles the brow, often produces alterations in the ophthalmoscopic appearances of the choroid. The most frequent change is the absorption of pigment in irregular patches, which thus assume different shades of yellow brown. Not unfrequently in these cases, pigment is found in abnormal quantities scattered irregularly in small spots in different parts of the choroid.

TYPHOID FEVER IN THE 42D WIS. INFANTRY,

STATIONED AT CAIRO, ILLINOIS.

By GEO. D. WINCH, Surg. 42d Wis. Inf.

It has been four months since the enlistment of this Regiment, and they have been stationed at Cairo most of the time. The men are mostly farmers, of good constitution.

I first see these cases when brought to the hospital, and on examination discover the following symptoms: They have had one or two days of feeling chilly, very weak in the limbs, with some pain in them. Nearly one quarter of the cases have a severe headache that remains three or four days and then passes gradually away. This symptom does not otherwise change the character of the disease. Pulse averages from 90 to 120, and soft. Frequently no inclination for sleep the first two or three days; often detect tenderness over the abdomen in this early stage. At the expiration of four or five days there are two directions for the disease to run.

One class continues a mild course, pulse never rises above 100, no delirium, tongue moist, secretions of the kidneys and intestines are nearly normal, except a slight alkalinity of the urine, which I will soon notice. If sordes collect on the teeth they will soon abandon their illegitimate situation. After continuing in this condition for two or three weeks, the light abnormal symptoms clear away by degrees and the patient in a very short time is able to be returned to duty.

In the other and more severe grade, the pulse continues to increase in frequency until it rises to 110 or 120, very seldom 130, becoming weak and thread-like; the tongue coated, dark and dry, many cases fissured, and in a still less proportion swollen. The skin of the feet and hands dry and scaly; tremor of the muscles on moving. Extreme deafness in many cases, and frequently a thin discharge from the ears, amounting to three or four ounces in twenty-four hours. Delirium consists of a low, unconscious muttering. In but very few cases flaccitation. Between the sixth and tenth day of the

disease a cough commences, accompanied by expectoration. Auscultation detects crepitation with sibilus. These pulmonary symptoms are frequent, and gradually clear away sooner than the other symptoms. Bed-sores have been unusually frequent and severe; the sensibility frequently blunted.

I have closely watched for eruptions in all its stages. The only class I was able to discover was sudamina; they were two lines in diameter, containing a white, thin fluid, had no red bases. By passing the hand over them it produces a feeling of roughness. They are present in one-third of the cases of this kind, commencing near the fifth, and lasting from six to nine days, and then dry away leaving the surface in a scaly powdered condition. The perspiration was more free in the cases with the eruption than those without it. From the 14th to the 20th day, sometimes much later, the symptoms commence improving.

Pulmonary symptoms, which commence after the disease has begun, disappear first. The urine at the commencement gives alkaline reaction to test paper, in nine-tenths of the cases, continues so through the disease, unless changed by the free use of acids. Its specific gravity was found much below that of normal urine in a very few obstinate and long-continued cases. It did not coagulate by the Nitric acid or heating test.

Treated thirty-three cases, lost one. On examination of the abdomen found the small intestines of a slate color; the lower portion of the ilium filled with a dark substance, about the consistence of mucilage, evidently more or less blood; the mucous coat of the whole tract of the ilium was thickened and congested. Ulceration was confined to the last five inches of the ilium, in which were found four ulcers, about three lines in diameter, which had destroyed the mucous coat. Kidneys and liver had a healthy appearance; the omentum healthy; thorax not examined.

Although there is so much liberal writing on the treatment of typhoid fever, it is difficult to find a guide in all cases. In this disease, as in many others, the celebrated prescriptions

extolled by distinguished men will not perform the work they are intended to execute, especially among troops that *frequently change their location.* Judging from the alkalinity of the urine, and observing that those patients whose urine gave the strongest alkaline reaction, were the most dilatory in their recovery; and those that had a relapse were the patients that had alkaline urine when they left the hospital, and when they returned, I came to the conclusion that the remedies should be acid, and the practice has decided the virtue of the theory. The cases that come under the first class will do well without much treatment. Give a small dose of some alcoholic stimulant after meals, beef-tea every three or four hours. If necessary, an opiate to quiet wakefulness, and stimulating expectorants for the lung difficulty; also mur. acid, dil., gtts. xv, three times a day.

But the second class, where the urine is obstinately alkaline, and other symptoms severe, require more meddlesome treatment. Give dil. mur. acid, m. viij, as frequently as once in three or four hours, combined with tinc. opii in small doses as nervous symptoms arise. Let the patient occasionally have a drink of solut. bi-tart., chlor., or bi-carb. pot.* As pulmonary symptoms exhibit themselves, combine with other remedies, fluid ext. seneka in moderate doses, and here again will the opiate be a useful auxiliary. I find sul. quinia, given in from one to two grain doses, four or five times a day, combined with the other remedies, to be useful. *Give it for its tonic effect.* The mur. tinc. of iron, with tinc. gent. comp., has worked admirably in those cases that were anæmic, not omitting the mur. acid. But I am confirmed that it is not so useful for a tonic, except in *those* cases, as quinine. In a large proportion of cases it has been necessary to move the bowels with gentle cathartics. After a trial of different methods of treatment, I find patients recover in less time, are not as liable to relapse, and the pulmonary symptoms less severe, in those cases where the mineral acids have been used, in combination with the other necessary treatment.

AMERICAN MEDICAL ASSOCIATION.

The Committee of the American Medical Association, to which was referred, at its late annual meeting, the subject of "*Spotted Fever—so-called*," earnestly solicits from members of the Profession, in different parts of the country, information respecting the history, phenomena and treatment of this disease, as it has come under their own notice.

As it is desirable to learn the geographical distribution of this disease, intelligence respecting it, from physicians residing in distant States, and from Medical Officers of the Army, is particularly requested.

For the sake of uniformity, the following questions have been prepared. Any matters not included in, or suggested by them, will, with the answers themselves, be gratefully appreciated and acknowledged by the Committee.

Address the Chairman of the Committee.

DR. JAMES T. SEVICK,
1109 Arch St., Philadelphia.

1. When did "Spotted Fever—so-called," appear in your neighborhood, and how long did it prevail there?

2. What were the usual symptoms of the disease, and what unusual symptoms occurred in your practice?

3. Did it attack many individuals at the same time, and was it materially modified by the age, sex, or temperament of the patient?

4. What was the ordinary duration of the disease, and were relapses or second attacks common?

5. Are you in possession of any proof that the disease was communicated from one person to another?

6. What appeared to be the predisposing, and what the exciting causes of the disease?

7. What complications, and what sequelæ of the disease came under your notice?

8. What other diseases prevailed at or near the time that Spotted Fever did, and what epidemic diseases followed it?

9. What was your mode of treating the disease?

10. What was the proportion of deaths to the whole number of persons attacked, and what was the usual manner of fatal termination?

11. What were the *post mortem* appearances?

12. Were any microscopical observations made, and what were their results?

13. Has this disease prevailed in your neighborhood in former years?

SELECTED.

SCABIES.

[Read before the Boston Society for Medical Improvement, and communicated to the *Boston Medical and Surgical Journal.*]

By JAMES C. WHITE, M. D.

In the days of our fathers scabies was a diseases of frequent occurrence and was the pest of the village school, but it gradually died out under more cleanly ways of living, until in our generation it has become so rare that many physicians do not recognize it even when called upon to treat it. The frequent mistakes in diagnosis which arise through this want of familiarity, the importance of the immediate recognition of its existence in a family, and its marked increase among us within a few years, lead me to ask the attention of the Society to some points connected with its nature, diagnosis and treatment as they were observed by me in the clinic of Prof. Hebra.

Three forms of the itch insect are met with upon the skin, viz., the female, male and young. The mature female is discernible with the naked eye as a speck, 1-4 line in length and

1-6 line in breadth. It is of a white color, and resembles in form a tortoise shell, with an arched back and flat belly. The male is only half the size of the female, and, until recently discovered and described by Boeck and Danielsson in cases of Norway itch, was unknown. In structure it differs but slightly from the female. * * * * It is not white and shining like the female, but black and compressed. The young possess but three pairs of legs, and in them no distinction of sex is noticeable. In order to become mature they undergo, according to some writers, three metamorphoses; according to others, only one. Whether all these changes are essential or not, it is at least a fact that the six-legged form may be found containing within itself a visible eight-legged one. After maturity the females cease to creep over the surface of the skin, and remain in new burrows till sought after by the males. One coitus must suffice to impregnate the entire ovary of the female, for after copulation she burrows deeper and deeper, and forms the long burrows to be more particularly described hereafter. The male never enters one of these true burrows where the eggs are found, but digs himself a shallow cell or seeks new fields for his sexual rambles. The female goes on her downward course obliquely through the epidermis, and leaves behind her each day a new laid egg and masses of fæcal matter. The direction taken must necessarily be oblique, for otherwise the rapid increase of the epidermis from below upwards and discharge of effete superficial layers would allow the escape of the eggs before the proper time. After 14 are thus deposited, the larva of the oldest, which has been gradually pushed up from below, becomes mature, and emerges from its birth-place through the opening made by the mother to undergo the processes above described, leaving behind its broken egg-shell. All stages of development may be witnessed in these eggs, from the amorphous form in which they are deposited, through segmentation, to the perfect young before it breaks its prison. The old female never leaves her hole, and sometimes wanders along for four inches beneath the surface. Fifty eggs and broken shells are sometimes counted in such burrows, although they never contain more than 14 larvæ at one time. If, however, a pustule should be formed the eggs are destroyed, but the female emerges at the surface near the edge of the pustule, and commences her descent anew. The whole time required for the young to reach maturity after impregnation is estimated at six weeks. How long the female may live is not known, but she probably dies at the extremity of her burrow after depositing all her eggs.

The symptoms produced by the presence of these minute animals are of two kinds—the direct or primary, those caused by the animal itself, and the indirect or secondary, those produced in consequence of the scratching. They are both subjective and objective.

The Primary.—We have already seen that the appearances on the skin must differ according to the age and sex of the parasite. The young and males make only a little pit or short burrow for purposes of metamorphosis or nutrition, and at most give rise to the formation of a minute vesicle. It is the impregnated female only which produces the characteristic pathognomonic sign of scabies, the burrow for the deposition of her eggs. These burrows, when closely observed, are found to be linear elevations, running an irregular course, with an uneven surface corresponding to the situation of the eggs within, and terminating at one extremity in a marked prominence, which is the old one at work. Bourgignon considered these irregularities of surface to be caused by openings in the course of the burrow through which the female emerged at night; but, as already stated, it is known that she never leaves her hole, and microscopic examination shows the eggs lying with the long axis perpendicular to that of the tunnel, and that no such communication with the surface above exists. It reveals, also, the presence of numerous reddish brown globular masses scattered throughout its whole length, which are the fæces of its inhabitant. In persons of cleanly habits the burrows are generally distinguishable by their white color, but in classes among which scabies most commonly occurs, they are mostly stained of a darker tint than the surrounding epidermis, from the absorption of dirt and coloring matters. In length they vary, averaging generally from one or two lines to half an inch, but in exceptional cases they may stretch out to three or four inches, although the eggs are much farther apart in such instances, as the number in each individual is probably limited to 40 or 50. The direction they take is slightly zigzag or curved, seldom perfectly straight. When fresh, a small vesicle often marks the point of entrance of the animal, and in other instances the whole burrow is lifted prominently above the surface by the exudation excited beneath it, which may be converted into a pustule and thus destroy the embryos. In rare cases a large papule may be formed beneath the burrow, over the summit of which it may be seen to run. The entrance of the tunnel generally remains open for the exit of the young and for the admission of air. When

the disease has existed for a long time they may run into each other, or secondary appearances may show themselves, which obscure the typical forms and present to an inexperienced eye no sign of scabies.

As to the *subjective* symptoms produced by these minute creatures, the plain Saxon name of the disease indicates strongly enough their nature. It is *the Itch*. The sensation experienced by the patient is produced in a degree only by the old female. It is the depredations of the young and males rambling at will over the surface of the body and boring at random into the deeper and senstive layers of the epidermis, or into the upper surface of the papillary structure, which produce an itching so intolerable as to make a resort to scratching an imperative necessity. The scratching, when once excited, however, is not confined to the local irritation of the affected spot alone, but, owing to the intimate connection existing between the sensitive cutaneous nerves and the pleasurable sensations thus produced, is converted into a general application of the nails to large surfaces of the surrounding skin.

This itching, which is a primary and subjective symptom, leads us from cause to effect, to the *secondary* phenomena of the disease—the eruptive appearances of scabies. It is only necessary to assume that scratching is capable of producing upon a person harboring a colony of sarcoptes the same appearances as upon the skin of anybody else, and we may account for all the objective symptoms of this affection, with the exception of the burrows already described, without being obliged to consider the possibility of any such absurdities as a psora dyscrasy or the absorption of the irritating fæcal matter of the insect. Let any one scratch himself roughly on the breast or thigh and study the result. We first see broad red lines corresponding to the irritated parts; this is erythema. The follicles then begin to swell up in consequence of the exudation, or, in other words, a papular eruption appears. Carry on the scratching farther, and we cause an excoriation and hemorrhage, by which the tip of each papule is colored black by the dried blood, as in prurigo. Again, if we scratch or interfere with the process of an exudation, what is the result? a pustule appears. It is incorrect, then, to say that such and such forms of eruption are caused by this animal. It has nothing at all to do with them, except to cause an itching, from which they all result. The eczema and vesicles, papules and pustules are wholly caused by our nails and our clothes, and

not by the parasite. In individuals who can not scratch, no such forms are met with. In the beginning of the disease the itching is very slight, but after a fortnight has passed, and the young are beginning to emerge and colonize fresh portions of the skin, it increases in intensity, and leads to more frequent indulgences in scratching, in consequence of which red spots or papules appear about the openings of the hair follicles. By the third week the itching has become so intense as to be no longer satisfied by superficial friction, and excoriation and a prurigineus eruption, tipped with bloody caps, bear witness to the execution effected by the nails. Finally vesicles, pustules, patches of eczema rubrum, and ecthyma, and depositions of pigment follow, and in some cases the extremities may be covered with crusts of the size of a copper cent, and with pigment spots, the seats of old scabs, which might be mistaken for syphilis. The eczema and pustules are at times sufficient to cause the neighboring lymph-glands to swell. These appearances are confined to certain regions of the body, as the chest, abdomen, thighs, and hands, not the parts where the burrows are in the greatest abundance, nor are they in proportion to their number, but those which are most easily accessible to the nails. Upon the neck, back, shoulders, and lower extremities very little eruption is found. Wherever constant pressure is made, there the appearances will be exaggerated. Those who sit all day, as shoemakers, tailors, and others, have the pustules and papules most developed on the buttocks, just as occurs in the axillæ of those who walk with crutches, and about the waist and under the garters of women. The appearances which the surface of the body presents in those who have had the itch a long time are most variable, and even long after the cause has disappeared, we may find an eruption which would serve as a model to illustrate almost every form of cutaneous disease.

A peculiar variety of scabies is met with in Norway, which is distinguished by the formation of huge crusts upon the surface of the skin like rupia, and by the presence of the parasite upon the face and even beneath the nails. Its frequent occurrence in that country and its rarity in other places, only some half dozen cases having been observed elsewhere, has led to the supposition that the disease was caused by some peculiar form of acarus, but Hebra has shown that the crust consists of dried epithelium, dead sarcoptes and their fæces, and that beneath, the whole epidermis is undermined by the swarms of animals, adults of both sexes, and young, living

without burrows, which are identical with the ordinary variety. It was in such social colonies that the male was first discovered and described. This form leads often to serious complications, as immobility and great swelling of the limbs, as in elephantiasis, with severe pain and inflammation, and is at times confined to a circumscribed part of the body, while the rest of the surface is affected in the usual way. We seek in vain for a satisfactory explanation of this form of the disease. Hebra thinks that great uncleanliness and indifference may be the cause, but the fact that it often affects parts usually exempt, is opposed to such an opinion. Küchenmeister thinks that some endemic influence or constitutional peculiarity alone can explain the greatly exaggerated exudative process. It yields as readily to treatment as the ordinary forms.

Diagnosis.—We see, therefore, that scabies presents a varied combination of appearances capable of misleading any one who does not carefully analyze them. We must always bear in mind the importance of recognizing the primary phenomena of the disease, which furnish positive evidence in any particular case. We can not, therefore, make ourselves too familiar with all that pertains to the habits of the sarcoptes and its marks upon the skin, and even at the risk of repetition we shall explain the means to be employed in our examination. As has been remarked, the favorite spots for the burrows are the commissures and lateral surfaces of the fingers, the hands, penis, nates, feet, and folds of the axillæ, and in women the breasts, while in children we may find them equally distributed over the whole surface of the body. They may affect any part of it, in fact, except the head, although Hebra has cultivated them upon the face and scalp. It is the hand of the patient we first take up to examine, if we suspect the presence of scabies, for the collection of foreign matter, with which they continually come in contact, colors the burrows of a dark tint. If, therefore, we see streaks or spots which resemble such a burrow, we have only to rub it with some dark coloring matter, as ink, and then endeavor to wash it off, and if we really have to do with scabies we shall find that the pigment has penetrated beneath the epidermis and can not be removed. If we fail to find the burrows on the hands, for owing to some occupations these are at times an unpleasant dwelling place for the sarcoptes, we should examine the penis, where, from the yielding nature of the tissues and the undisturbed quiet, we find the most perfect specimens of animals, eggs, and burrows, or, in a person of sedentary

habits, the buttocks. The specimen exhibited to the Society was snipped from the glans with a fine curved scissors by Hebra. This may be done without much pain to the patient, for it is not necessary to go deeply to cut out the whole burrow and animal intact. In persons who suffer from cold hands and feet we often find these parts entirely free, while the rest of the body may be covered with the eruption. This is corroborative of their love of heat, and when a person lies habitually on one side in bed, we sometimes find that side of the face affected, while that exposed to the cold remains untouched. Another exemplification of the same law may be seen in the immediate relief which a patient, wrought almost to frenzy by the itching of a general scabies at night, finds by jumping out of bed into the cold atmosphere of winter. The animal is best obtained from its burrow in the way above mentioned, or we may open the elevated track with a sharp knife or needle, and find it at its extremity. The males may be found with a lens upon the surface of the body, near the burrows of the females, or slightly embedded in the skin, appearing as a dark point. The young are generally found in fresh vesicles or in the epidermis undergoing their metamorphoses. We may often detect the lurking place by rubbing the suspected spots with German soap, and in twenty-four hours an exudation will follow and elevate the burrow. In this way we may often settle doubtful cases. By transporting a colony to one's arm the customs of the animal may be easily observed with a lens, and we see that they seldom or never go below the epidermis. In order to enter this, the acarus supports himself on his anterior end by means of its long posterior bristles, and works away with its lobster-like claws. It usually takes one-fourth or one-half an hour to penetrate the outer integument, but this once pierced its progress is more rapid. When coming in contact with the nerve papillæ it causes a stinging sensation. The poorer in nutriment the epidermis, the deeper it penetrates, and the greater the exudation caused, which lifts up the animal and gives the white color to the hole. The young brood seems to require the tender and last-formed epidermal layers for its food, and therefore bores deeper and produces more itching and exudation. When wandering about on the surface they produce no exudation whatever, but on the genitals and upon infants, where the epidermis is very thin, they are obliged to go deeper, whence the large exudation which ensues in such cases. It is a commonly received opinion that the parasite is to be found either within a vesicle, or, as it is said, a

little way from it, without any apparent reference to the existence and importance of the burrow. In the majority of cases the vesicles have no connection with the position of the animal, and in the exceptional cases contain only the young, or are situated at one extreme end of this canal, while the game hunted is at the other.

Wilson has added to this confusion by giving, as one of the important diagnostic signs of scabies, "a peculiar scaliness and undermined state of the epidermis," from beneath which the animal may be extracted. This scaliness we have never observed, but we should literally as soon think of looking for a needle in a hay-mow as to attempt to extract an acarus until we had found a burrow, and a fresh one. In case none such can be found, we may still hope to obtain the proof we seek in the dried eggshells and fæcal masses the old burrows contain; or if this opportunity even is wanting, we may perhaps be fortunate enough to chance upon a vesicle which contains the young or a portion of its cast skin. Neither can we understand why it is that this writer should make the extraordinary statement that "one of the most remarkable phenomena of scabies is the localization of the acarus to the hands, while the eruption excited by it may be spread more or less extensively over the entire body." This is quite as incorrect as many of his statements with regard to vegetable parasitic affections. It is true that among the favorite lurking places of the animals are the folds of the skin between the fingers, for there they find the conditions of warmth and moisture they prefer; but, as we have seen, they affect as well the penis, folds of the axillæ and nates, and were we in search of a specimen we should turn first to these latter regions, where the burrows are less interfered with. Cases occur, however, and not unfrequently, where from the peculiar situation of the disease, or from interference either by the patient or by treatment, all immediate signs of the presence of the animals are wanting, where no burrow, fresh or dried, and not even a vesicle is to be found. Are we, in fact, able to recognize scabies by any peculiarities in the gross or secondary appearances? In the great majority of cases we are. We should examine carefully the whole body, notice the locality and character of the eruption, the appearances about the hands and feet, upon the penis and upon the nates, and if we have once thoroughly studied and understood the little peculiarities which give individuality to the multiple appearances of the disease, we shall readily recognize its nature, even when

complicated by the simultaneous occurrence of an eczema or other cutaneous affection. We strongly insist upon the necessity of a careful attention to all these points, so important in diagnosis, on account of the great number of cases in which no other signs are present, and the frequency with which mistakes occur in consequence. We have repeatedly seen cases of well-marked scabies treated for a long time as some other disease, in which typical burrows were staring the physician in the face all the while, and again others which were equally unmistakable on close examination, though not so striking, called lichen or prurigo, when the microscope revealed the presence of the parasite. There is, in fact, an indescribable expression in the features of a case of scabies which can hardly be mistaken by any one who has once had the opportunity of seeing a large number of patients known to be affected with this disease. In cases of very long standing, or when confined to the hands, all specific appearances may be merged in those of chronic eczema, so that we may only suspect, not feel entirely sure in our diagnosis. In such cases we should always adapt our treatment to our suspicions, and at least remove all doubts with regard to the future character of the eruption by the application at once of our parasiticide.

Ætiology.—Scabies is found all over the world, but who had the first sarcoptes is a question not easily answered. It may have originated by transference from some other animal, for the same species is found parasitic on camels, lions and other animals in menageries, although it may have been man who affected the brute in such instances. We know that the mange of domestic animals, as the horse, pig, dog and cat, is capable of producing upon the skin of their keepers appearances similar to those of true scabies, but these are never of long duration, and yield much more readily to treatment than those produced by the sarcoptes hominis. We never see here in these days such cases of scabies as are met with in a European hospital. In Germany the old system of apprenticeship and its attendant wanderings through the land is still kept up, and in this way the disease is borne from one part of the country to another. Master workmen have generally but one bed for four apprentices, and the linen is seldom if ever changed. Scabies until recently has been comparatively rare here, although it has sometimes run through a school or an orphan asylum, or found its way into a good family, the young lady members of which often bear it about for a long time before suspecting its true nature. Of late

years it has been quite largely introduced into the country by the crowds of immigrants which pour into our large cities. Every ship that arrives with such a freight brings scores of fresh cases of the disease, which spreads rapidly during the voyage, owing to the close quarters and want of cleanliness, and which serve as so many new centres of contagion wherever their inmates settle. The child carries it to the school and gives it to its playmates, and the older girl communicates it to the children or fellow servants at the place she takes. We have recently known an instance where it was started in a small manufacturing town but a few miles from Boston, and was introduced into a large number of families before its real nature was understood. Returned soldiers bring it frequently with them from the camp, and leave it behind as a constant reminder of their furlough. The mode of infection consists in the transfer of individuals from one host to another. This is accompiished in the majority of cases, without doubt, by the young and males, for, as we have seen, the mature female never leaves her hole. The acarus is an animal which loves the warmth, and on this account has been called nocturnal, but without good reason. The wandering and activity are excited only by the warmth imparted to the body by lying in bed, by sleeping with others, and by dancing, when hands are freely interchanged, and thus it is that the parasites are conveyed from one person to another. The nurse gives it to the child by placing her hand beneath its little nates, and so bearing it about. It may also be conveyed by wearing the clothes of any body afflicted with it, for both eggs and insects possess an obstinate vitality, and may exist months without food. It may happen occasionally that the old animal is scratched from its hole and thus transferred to another part of the same host or to a bed-fellow. We see, therefore, why it is that in some cases a person exposed to the disease may not exhibit any other symptoms than a solitary unnoticed burrow for weeks, until the young begin to make their appearance upon the surface, whereas in other cases the transference of the affection may be accomplished by several young or males, which begin their provoking rambles at once and cause an immediate eruption. It is this circumstance, principally, which determines the so-called period of incubation, and not, as Mr. Wilson says, the particular temperament, climate, season, age, confined air, etc. Scabies is seldom, if ever, caught by handling patients, however freely this may be done, and physicians and nurses are seldom infected. In one instance only, and

that on an intensely hot day, did I ever see infection follow thousands of such contacts between patient and student. There must be many cases, however, where such transfer takes place without any result, for should several males or an unimpregnated female alone be conveyed to a fresh skin no general scabies would follow.

Treatment.—The chief indication in the treatment of scabies is of course to destroy the insect and its eggs, if possible. Any means which will accomplish this without injury to the skin and in the shortest time, is of course the best. The use of internal remedies belongs to the days when a belief in a dyscrasy prevailed, and nothing need be said about it. It will be needless to mention all the numerous remedies which have been used at various times and among different nations. Nearly everything has had a trial, but the remedy to kill the eggs as well as the insects is yet to be discovered. Among them all, one substance has attained a reputation which has made its use universal. Sulphur in some form, as a gas, as an acid, as a salt, in form of bath, or ointment, or tincture, either alone or mixed with other substances, is employed all the world over. There is, however, a great difference in the effect of the various preparations both upon the patient and upon the disease; and a knowledge of these effects is essential to a proper selection. Sulphur baths once employed, required weeks to produce any permanent effect, and were extremely disagreeable. Still less can be said in favor of the sulphur vapor bath, which, when used of sufficient strength to produce the desired results upon the parasite, usually causes so extensive an eczema as to require weeks of after-treatment for its removal. Simple sulphur mixed with fat (sulphur ointment) rubbed thoroughly into the skin, will in time cure the disease, but the process is a long one, and, when pushed to the extent to which the English use it, seldom fails of causing an artificial eczema. A more rational plan is to add to the preparation some substance which will more speedily remove the outer layers of epidermis, and allow the sulphur to come in direct contact with the animal. Such a substance is an alkali, and this combination in some form is at the base of all the various remedies and cures of the day. Among these, perhaps, Helmerich's ointment is the best, and it is this preparation which is employed by Hardy in his quick cure at San Louis Hospital. The original formula is:—Sulph. flor., ℥ ij.; pot. subcarb., ℥ i.; adipis, ℥ viij. Hardy uses lard, 300 parts; sulphur, 50 parts; and subcarbonate of potash, 25 parts; and

his whole treatment lasts but an hour and a half. For the first half hour the patient is rubbed from head to heel with soft soap; during the second he is kept in a warm bath, and the third period is devoted to a universal friction with the above ointment. Bazin uses Helmerich's ointment unchanged, but employs two frictions instead of one. The patients are immediately dismissed, and are not again seen. In the majority of cases the quick cure is sufficient to overcome the specific character of the affection, but it by no means cures the other appearances which form so important a part of scabies, and relapses will frequently occur, for it is not easy to remove every egg at once. Three or four days is a much safer period to keep the patient under observation and treatment.

Another improvement suggested itself to Wilkinson, in the addition of some substance to prevent and heal the eczema by the use of sulphur in the above preparation, and some gritty matter to render the friction more effectual, and he accordingly added tar and chalk in the following formula:—sulph. venal., ol. fagi, sapon. domest., adipis, aa libram; cretæ, ℥ iv.; ammon. hydrosulph., ℥ ij. This ointment was modified by Hebra by the omission of the last ingredient as useless, and by a diminution in the quantity of sulphur to lessen the tendency to eczema, and for a long time he treated most successfully the great number of patients under his charge with the following preparation—sulph. venal., ol. fagi, aa ℥ vi.; sapon. viridis, adipis, aa libram; cretæ, ℥ iv. M. In cases where fat could not be employed, a more cleanly tincture was made by substituting alcohol to the same amount for the lard in the above formula. The action of this combination of remedies may be thus explained. The alkaline soap, assisted by the mechanical action of the chalk, removes the external layers of epidermis and opens the burrows, the sulphur acts as a parasiticide upon the animal, and the tar prevents the eczema, while the alcohol carries into the parts most deeply affected these active principles. The method pursued by Prof. Hebra until quite recently was as follows: The patient is put into a warm bath, where he remains for half an hour. Then a piece of coarse blanket is smeared with sapo viridis, and with it every finger and portion of the surface must be thoroughly rubbed. This is to be washed off in the bath and the skin to be dried. Then the ointment or tincture is thoroughly applied to the whole body, or in slight cases to the parts affected only, and the patient is carried to a warm chamber, where he remains until the next day, when the same

process is repeated, and this treatment is pursued until itching no longer exists. Three baths are all that are allowed, unless many pustules are present, when more will be beneficial. The patient can be treated in this way at evening and continue at his work by day. In mild cases and tender skins, the modern sulphur soaps will be found of benefit, or we may use for ladies the following preparation introduced by Bourgignon: Ol. lavend., ol. menthæ, ol. carophyl., ol. cinnam., aa ʒi.; gummi tragacanth, ʒi.; potas. carb., ʒi.; lac. sulph., ʒiij.; glycerine, ʒvi. M. Within a few years, however, Professor Hebra has employed the Vleminckx solution entirely in the treatment of this disease. This method was introduced by the Surgeon-General of the Belgian Army, and its effect was found to be so satisfactory as to lead to its trial with the most eminent success in other cutaneous diseases. The formula for its preparation is as follows: Sulph. flor., ʒij.; calcis vivæ, ʒi.; aquæ, ʒxx. Boil till ʒxxi. remain, and filter. We obtain in this way a clear orange-colored liquid, the expense of which is but very little. We get, accordingly, the necessary alkaline action, combined with the sulphur in a penetrating form, and the result is all that could be desired. The only objections to its use are its irritating effect and unplesant odor; but the necessity for its use is limited to so short a period that they amount to little. It is applied in the following manner: The patient must rub his whole body thoroughly at night with a flannel cloth wet with the solution for half an hour. He then takes a warm bath of an hour's duration, during which the sulphur is washed from the skin, and subsequently a cool sponge bath of pure water. An application of some fatty substance or of a thin solution of oil of cade may be used if necessary.

One or two repetitions of this process will be sufficient to cure the most severe cases of scabies. We have employed this method of treatment repeatedly, and have never known the itching to fail to disappear almost entirely after the first application; but should it return at any spot, subsequent treatment may be confined to this locality.

Whichever of these three most deserving methods—that of the Helmerich's salve, of the Wilkinsonian ointment or tincture, or of the Vleminckx solution—we choose to employ, we must remember that there remains to be treated the secondary eruption, after the parasitic element has been eradicated. In mild cases it will disappear of itself, but in the severer and long standing forms it is necessary to apply the same princi-

ples of treatment which were mentioned in connection with eczema. We must also bear in mind the fact that a continuance of the specific treatment, after it has fulfilled its object, may of itself provoke appearances which the physician only creates while endeavoring to cure. The after treatment of scabies consists of an avoidance of all past sources of contagion and of baking in an oven the clothes previously worn.

CHANGES IN THE KIDNEYS FROM LEAD POISON.

M. Lanceraux maintains that in the elimination of this poison a change altogether peculiar is produced in the kidneys—a true Bright's disease. The author alludes to cases of fatty degeneration of the kidneys in poisoning by phosphorus, by the acid nitrate of mercury, and by sulphuric acid. In the latter case he observed that "the cortical substance of the kidneys, of about normal consistence, was dotted with red. In the field of the microscope, there was absence of fat in the tubuli, but destruction of most of the epithelial cells, which formed a finely-granular grayish mass. The walls of the canaliculi appeared intact, but the interstitial connective-substance was altered, and in course of proliferation (nephritis)." The author says that the renal affection co-existent with lead poisoning is not a simple coincidence—that he has always found its characters very analogous, if not identical. He thus sums up the results of his investigations in three cases:

There was, 1st, an advanced stage of lead poisoning, with cachexy; 2d, a lesion of the kidneys, always characterized by inequality of their surface; atrophy of their cortical substance; hyperplasy of the connective substance; destruction, or even the disappearance of the cellular elements, with albumen present in the urine. This renal affection only succeeds to an advanced stage of lead disease.—*Am. Journal of the Med. Sciences*, from *Brit. and For. Med.-Chir. Rev.*, April, 1864, from *L'Union Médicale*, Dec. 15, 1863.

EDITORIAL AND MISCELLANEOUS.

COMPOUND, COMMINUTED, COMPLICATED, AND IMPACTED FRACTURE OF THE RIGHT FEMUR,

At Junction of Upper with Middle Third—Secondary Hemorrhage—Ligation of Femoral Artery one and a half inches below Poupart's Ligament—Recovery.

By A. J. BAXTER, M. D., of Chicago.

A recent writer says, "No humane, enlightened, and conscientious surgeon will ever resort to amputation without being satisfied of its entire and perfect necessity." Such a statement at first sight might seem superfluous, but when it is remembered that limbs have been sacrificed for selfish motives; for the glitter of operation, or to save time and trouble in subsequent treatment, we are not so much astonished, but rather blush for shame.

But the case is quite different when a member has been crushed by the passage of a railway car, or heavily-loaded wagon, or fall of an embankment. Here there is no debatable ground; but one alternative—amputation. Even under these circumstances it is a sad thing to lose a limb, but it is infinitely more deplorable to die; yet I have seen one instance where the unfortunate preferred to die with four limbs than to live with three.

The following case is interesting in several particulars:—1st, In embracing nearly all the varieties or general division of fractures. 2d, In being attended by rupture of the femoral vein. 3d, With secondary hemorrhage.

John L——, shipping clerk, æt. 40; active and stout. Nov. 1st, he was engaged in loading a barrel of flour into an express

wagon, when from some cause, the horse took fright and ran. Acting on the impulse of the moment he ran and caught the horse by the bridle, but was unable to maintain his hold, fell under the horse, was trampled on, kicked, and passed over by the wheels of the wagon. Finding himself unable to rise he was picked up by those who witnessed the accident, and carried into the store in which he was employed, and that skillful surgeon, Dr. Daniel Brainard, summoned, but being otherwise engaged, very kindly referred the case to me, for which I now tender my thanks.

On my arrival at his place of business I found him propped up against the wall, and remarkably composed for one who had just gone through what the bystanders said was "enough to kill forty men." The proper mode of procedure was so apparent that I informed him as soon as possible without appearing hasty, that it would be necessary to amputate the limb, which seemed to surprise him so much that he requested me to defer the operation until he could see his family physician, to which I readily consented, and gave direction to have him taken home in a hack immediately. Having obtained several assistants I repaired to his residence and found the family physician had not arrived.

On examination he was found to be very much prostrated, and the limb enormously distended with diffused blood. As his condition was rapidly becoming more unfavorable, immediate amputation was urged by all present, yet he seemed to think it not necessary. Finally the family physician came and assured him amputation was necessary; he was satisfied.

After being brought under the influence of chloroform, and the femoral artery compressed by the thumb of an assistant, the limb was amputated about 2 inches below the trochanter minor, by the circular method.

Although the operation was performed with all the celerity I possessed, compatible with safety, it was thought he would expire before its completion. On dividing the integument and muscles a perfect deluge of blood gushed out, which had es-

caped from the femoral vein. At this moment rapid sinking supervened. Why the escape of this confined blood should produce such a rapid and alarming prostration (if it were the cause,) is somewhat of a mystery to me. Physiologically the blood had ceased to be subservient to the wants of the system.

The operation completed, stimulants and hot broths were given, and artificial warmth applied, under which he gradually rallied, and by 9, P. M., (eight hours after the operation,) he was as comfortable as could be reasonably expected.

From this time he rapidly improved, and everything wore a cheerful aspect until the 14th day, when all of a sudden and without any assignable cause, secondary hemorrhage supervened. On my arrival the hemorrhage had ceased; he was very much agitated, pale, and bathed in a cold, clammy sweat, and constantly asking for water. The stump was distended with coagulated blood, which extended up the inside nearly as high as the pubis. Judging from appearances he must have lost between eight and twelve ounces. What should be done? So far as the present was concerned everything was safe, but how about the future? Mr. Guthrie says, "There is no precept more important than that which directs that no operation should be done on a wounded artery, unless it bleed, inasmuch as hemorrhage once arrested, may not be renewed, in which case any operation must be unnecessary." This is very true, so far as the hemorrhage is concerned, but is this all there was to fear? I think not. The tissues contained a large amount of coagulated blood, which communicated with the air; decomposition must take place; gasses be evolved and absorbed, producing pyæmiæ, or more properly speaking ichoræmiæ, and a typhoid condition more to be feared than the hemorrhage; and as there was no certainty that hemorrhage would not recur, I decided to open the flaps, turn out the coagulated blood, and search for the faulty vessel; but in spite of all that could be done consistently, it would not bleed.

Being left without any guide to the wounded vessel, the

flaps were brought together, compresses wet with cold water, applied, enjoined strict rest, with elevation of the stump, gave half a grain of morphiæ, and departed, with a *faint* hope the hemorrhage would not return. But my hope was "like a dream, to wake up in disappointment." My office had scarcely been reached before a messenger entered and gasped out, "he is bleeding again."

On reaching the house found the stump to contain a large coagulum, but not so large as the former, and the blood issuing from the inner angle of the flap, this was controlled by making pressure on the femoral artery, which afforded a clue. The femoral compressed by an assistant, the coagulum was turned out, and to facilitate matters the flap split up on the inside. The pressure being discontinued, the blood was seen to pour out or well up in a continuous stream as water rising from a spring. But the tissues were in such a disorganized condition that it was impossible to secure the bleeding vessel, and as compression of the femoral artery controlled the hemorrhage, it was concluded to ligate that vessel, which was accordingly done 1½ inches below Poupart's ligament.

From this time the patient progressed favorably, and is now going about on crutches.

On dissecting the amputated member the femur was found to be broken into six pieces. The middle and largest piece was fissured or split, but held together by the periosteum. The fifth piece from above, downward, was firmly impacted into the upper end of the lower fragment. The femoral vein had a small lacerated opening in its posterior and external aspect. All in all, presenting a variety of complications rarely witnessed in a single case.

To Doctors Hunt, Slayter, and Macdonald I am indebted for valuable assistance rendered during the operation.

January 7th, 1865.

—Elmer's Hand-Book of Practice for 1865 is for sale by our principal dealers in Medical Books and Periodicals.

ON THE ACTION OF BROMIDE OF POTASSIUM.

By S. W. D. WILLIAMS, M. D., L. R. C. P, Lond.

Reading some remarks in a late number of the *Lancet* on the action of bromide of potassium, and having tried the drug extensively for the last five months, it has occurred to me that a few observations on its action may not be unacceptable to the readers of the *Medical Times and Gazette*.

Through the kindness of Dr. Wing, the Superintendent of the Northampton General Lunatic Asylum, I have been enabled freely to try it in as many as thirty-seven cases. These were all epileptics, and I append a table showing in one column the number of fits registered during the last five months of last year, when they were taking no medicine, and in the other the number registered during the first five months of this year, when each case was taking on an average ten grains of the salt twice daily.

I may premise that the greatest care was taken that, for the whole of the ten months during which these thirty-seven patients were under observation, their lives, with the exception of taking the bromide during the last five, should be spent under as near as possible the same circumstances.

Males' Names.	Fits during the last five mos. of 1863.	Fits during the first five mos. of 1864.	Females' Names.	Fits during last five mos. of '63.	Fits during first five mos. of '64
W. M.	148	107	E. H.	23	19
J. R.	69	45	E. J.	25	37
J. B.	32	21	M. K.	60	27
J. J.	246	91	E. H.	29	9
W. L.	55	37	E. W.	50	56
S. L. B.	19	24	C. S.	17	23
T. H.	40	29	S. A.	82	85
C. B.	52	46	M. L.	20	5
R. H.	112	102	A. S.	41	22
G. M.	47	64	E. G.	46	53
W. W.	36	37	H. W.	1	...
J. L. M.	33	26	M. L.	57	8
T. G.	13	4	A. C.	11	22
R. G.	30	9	M. C.	1	...
J. K.	25	16	S. A. P.	577	556
E. E.	8	14	S. A.	1	...
W. O.	10	10	S. S.	73	37
W. M.	29	14	E. G.	13	11
J. J.	8	10	....	..	..
	1012	706		1127	970

From the following table it will be seen that the number of fits amongst the males decreased by 306, and amongst the females by 157; that all the patients but 5 males and 6 females were benefited more or less; that the improvement was, however, more apparent amongst the males than the females; but that no patient of either sex was entirely cured. It is right to remark that all these patients are more or less insane, and many of them extremely violent at times.

Mr. Henry Behrend, the writer in the *Lancet*, confines his remarks to the powerful effect this drug has on "insomnia and restlessness, accompanied and dependent on nervous excitement and irritability," and this statement my own observations fully corroborate; but I have not the same confidence in recommending, as he does, the unfettered use of half-drachm doses; for in several of the cases recorded above it was found necessary to reduce even the average—ten grains twice daily; and in the majority the first use of the drug was accompanied by sickness and lassitude.

Those patients on whom the drug seemed to take the most effect in this way were seven in number; after using it for a few days the action of their hearts became slow and fluttering, the eye lost its lustre, the skin was cold and clammy; they had a wearied, anxious look, and complained of headache, and sickness, and shivering, and of unusual weakness at the knees, and invariably sat crouched up by the fireside all day, evidently devoid of all energy and resolution. Curiously enough, in all the cases thus powerfully affected the fits were increased instead of diminished.

The drug excited hypercatharsis in two patients, which was repeated again and again each time it was renewed; the fits in both these cases were diminished; in the case of the female from 41 to 22.

One patient, S. A., was apparently, five months ago, one of the most healthy persons in the home—fat, strong, and rosy; but soon after taking the bromide, the peculiar symptoms described above developed themselves, and the medicine was immediately omitted; but, although she rallied a little, her system never thoroughly recovered itself; tubercles became developed in the lungs,and she died towards the end of April. Truth compels me to confess that I have my doubts whether the bromide of potassium had not something to do with the poor girl's death—at all events, this occurrence has made me very watchful when using it.

On the other band, considerable benefit has arisen from its

use in some cases; it undoubtedly exercises a most powerful influence on the nervous system, and often soothes the irritability of epilepsy, even if it does not diminish the frequency of the fits, when no other medicine will take any effect, and in this way will be found a most valuable adjunct to the repertory of an asylum Dispensary. I cannot think that it has much effect, however, on the sexual system; for in some cases where it was used more especially with that view, there was no apparent result, but of its powers in inducing sleep in cases dependent on nervous irritability there can be no doubt, and often from ten to twenty grains twice daily will suffice to effect this.—*Med. Times and Gaz.*

INFLUENCE OF PERIOSTEUM ON THE REPRODUCTION OF BONE.

"The third meeting of the Medical Congress at Lyons was entirely devoted to the discussion of two surgical questions: 1. What surgical improvements have modern investigations on the osseous system effected? 2. On the value of the means which may advantageously be substituted for the knife with a view of preventing the accidents which result from wounds. The whole discussion on the first question was confined to the part which the periosteum plays in the regeneration of the osseous tissue. Here the two existing schools of surgery, the old and the modern, were in direct opposition: the former asserting the entire inactivity of the periosteum, and the utter inutility of preserving it in operations; the other attributing to that membrane the only active part in the regeneration of bones. M. Ollier, of Lyons, (who has acquired great reputation precisely on account of his numerous experiments on the periosteum, and the importance which he attaches to that membrane,) together with M. Verneuil, of Paris, warmly supported the latter opinion, while M. Desgranges and others attacked it.

"According to M. Ollier, the periosteum alone reproduces the bone; no other tissue can do the same. All bones may be reproduced, whatever their form. The condition of the general health of the patient is influential in the work of reproduction. This reproduction takes place in man as well as in the lower animals, clinical facts being here in accord with ex-

perimental facts: *hence* the necessity of sub-periosteal excisions—much easier and much more simple than the resection by the old system. In support of these assertions, M. Ollier presented to the Congress numerous anatomical specimens, the results of his different experiments. He showed, in cats, the radius and the peroneum reproduced in different parts where the periosteum had been preserved; whereas they were wanting where it had been taken away. In one specimen, which excited general admiration, the humerus of a dog was entirely reproduced with perfect regularity of form. M. Ollier exhibited short as well as long bones in which the osseous regeneration was visible. He insisted on the importance which should be attached to the influence of general hygienic conditions while considering the success or unsuccess following sub-periosteal operations.

"To these various arguments M. Desgranges answers: that experiments had been made by other *savants* which had proved unsuccessful; that it could not be supposed that a membrane wet with pus could produce the effects attributed to it; that if the periosteum can reproduce the osseous tissue in a rabbit such a fact has not as yet been clinically observed in man. And besides, why preserve the periosteum at all, when we are told that it can reproduce itself even when taken away? The periosteum, it had been said, tends naturally to attach itself to the bone; wherefore, then, the necessity that in amputations of limbs the extremity should be covered with the periosteum? If this were true, what a marvelous discovery it would be for surgery! There would be no inflammation; no suppuration of the bone. Unfortunately this was not the case. He had already tried it five times, and he had observed prolonged suppuration and greater difficulty to cure. The 'supporters of the periosteum' had extolled its utility in cases of comminutive fracture, but the Society of Surgery itself had lately discarded this notion. Besides, the term itself of 'sub-periosteal excision' was incorrect; for in Maisonneuve's cases and others, operations for simple necrosis bore that name. The true sub-periosteal excision would be rather the emptying of the bone proposed by M. Sédillot, of Strasburg. The true field for sub-periosteal excisions was to be found in osteoplastic operations, and hitherto they had proved unsuccessful. In conclusion, he saw no truth whatever in the new functions attributed to the periosteum.

"With these two discourses, which embody the best arguments on both sides, I leave the two schools, in presence. Let

me not forget, however, to mention, as an important feature of the debate, the presentation made to the Congress by M. Aubert, a medical practitioner at Macon, of a young man, 17 years of age, on whom he had performed an eminently successful operation. This young man had been affected with a caries which occupied the whole epiphysis of the left tibia, together with condensing osteitis occupying a little more than the lower third of the dyaphysis. M. Aubert made an incision in the skin; separated the periosteum, and that very easily, as it was inflamed and adhered but little to the bone; then, slipping a chain-saw beneath the periosteum, he took off all the diseased portion of the bone, and disarticulated the tibia at its lower extremity. Four years have elapsed since that operation, and the patient now possesses a tibia entirely re generated, of the same form and volume as before. A very slight longitudinal depression scarcely indicates the part where the incision had been made. This newly-formed tibia ends below with an ankle perfectly formed; and the young man, whose health is vigorous, can walk fifteen miles a day, and dance during several hours, without any fatigue. This brilliant success, which speaks in favor of the sub-periosteal system, was saluted by the Congress with general applause." —*Paris Correspondent of Lancet.*

ILLUSTRATION OF SOME SURGICAL PHENOMENA BY THE THEORY OF PROJECTILES.

By E. C. BIDWELL, Surgeon 31st Mass. Vols.

I suppose that every missile projected from the mouth of a firearm, of whatever kind or calibre, has, in addition to its projectile motion, a motion of rotation upon an axis of its own. If this rotary motion be not the purposed result of the construction of the weapon, it is acquired from accidental causes, which may operate upon the missile at its start or during its flight. Any defect in the gun, or even a slight inequality in the shot, may cause it. Indeed, it is the design of the spiral groove which is introduced into most modern arms, large and small, to give the shot a rotation upon an axis corresponding to the line of traject, thereby to forestall the accidental rotation, which is more likely to be in some other direction, and tends to deflect it from its intended course. This rests upon a manifestation of the physical property of inertia, by which

a body in rotation tends to continue to rotate in the same direction, unchanged by any motions that may be impressed upon it as a whole. In other words, the direction of its axis continues parallel to that with which it commences, so long as the rotation continues. This principle is illustrated in the familiar toy, the top, in the spinning plates of the mountebank, and in the revolutions of the heavenly bodies. Now, as the line of flight is always a curve, the axis of rotation ceases to correspond exactly with that line the moment the flight commences. With every succeeding instant the one departs from the other more and more widely. A conical ball from a rifled gun must therefore impinge obliquely by its rotating side, and the more so as the gun is more elevated for long range. That is the theoretical result. I presume that in artillery it is the actual result also. It is said to have had a curious exemplification in the case of the percussion shells sent into Charleston by the Swamp Batteries, which failed to explode because they did not impinge by their apices. In the case of small arms it is found that the designed rotation is often merged in that which proceeds from accidental causes. The impressions upon conical leaden balls picked up on battle-fields, and their positions in various lodging places, prove that they impinge in all directions, and scarcely more frequently by the apex of the cone than by any other part. The acquired rotation of round shot is probably always upon an axis perpendicular, or nearly so, to their projectile direction.

This rotation of round musket balls is probably an important element in determining the erratic course which such balls sometimes take in the body. For it is evident that a ball in rapid rotation entering a medium in which it meets with considerable resistance, will most easily overcome that resistance on that side of which the surface motion is towards the resisting medium, because on that side the force of rotation is added to that of projection, and on the other side is so much deducted from the same force. It will consequently be deflected towards the side of least resultant force. It is well enough to remember that the rotary motion, meeting less resistance than projectile motion from the air, and none from gravity, may continue rapid and even violent after the latter is nearly or quite spent.

Another way in which the rotary motion of projectiles may modify surgical results, is found in the occasional violence of spent cannon balls. A round ball may be moving slowly along the ground, apparently just ready to stop. A careless observer puts his foot against it, and receives an injury which

may prove fatal to the member. It has been suggested in explanation of such cases, that the velocity was really much greater than it seemed; but if it were possible to note its progress and direction within such limits of distance that one could put himself in the way of it, the velocity must really have been very moderate. Others have referred to the great momentum which the missile *had*, as if momentum was not exactly proportionate to the velocity, and exhausted when motion ceases. But it is possible for a cannon ball, as for a billiard ball, or a marble, to have a rapid rotary motion after its projectile motion has ceased, sufficient to make it a dangerous neighbor. In that condition anything not capable of greater resistance than the human body, brought into forcible opposition with it, would inevitably suffer violence, precisely as it would if brought into like contact with machinery in like rapid and irresistible motion.

The same principle comes in to modify the injury in oblique impingement by cannon balls. If the rotation is such that on the side impinging the surface is moving forward, or in approximately the same direction as the projectile motion, a laceration results, co-extensive with its touch. The revolving surface moving with the velocity of rotation added to that of projection, *by friction* tears its way through the tissues as in the case already cited. If the rotation be in the contrary direction, so that the rotary motion of the impinging surface in a measure offsets or counterbalances the projectile motion, as in the case of a cannon ball simply rolling over a part, its surface friction may be so slight as to leave the skin unbroken, even unabraded, at the same time that the projectile momentum is sufficient to crush and comminute the parts beneath it to a fatal degree. Of this kind are the cases in which persons are supposed to be knocked down or killed by the "wind" of a cannon ball—an idea which is sufficiently refuted by the fact that shot not only come very near, but into actual collision, carrying away a hat or an arm, without any such stunning or destructive "wind."

It is indisputable that injuries from cannon shot are met with, of these two kinds, in one of which there is profound lesion, with little or no external indication; and in the other frightful laceration, displaying at a glance the full extent of the injury, yet altogether, perhaps, a much less grave injury than the other. That the rotary motion which these projectiles have is sufficient cause to account for the difference of effects, is demonstrable on the principle of mechanics. It is

not unimportant to know that something more than mere inexplicable caprice governs movements and determines results, here as elsewhere; that effects follow causes, even in the erratic movements of the missiles of warlike engines.—*Boston Med. and Surg. Journal.*

ON THE

INSPIRATION OF VAPOR IN CERTAIN LESIONS OF THE BREATHING APPARATUS.

By JOHN HUNTER, M. A.

Without laying claim to any great originality, I trust that the few observations I have to make upon this important subject, to which I have directed considerable attention, may be worthy of notice by the profession.

I suppose no one will deny that, as a general principle, the use of moisture in combination with air is of service in chest diseases. This we see daily evidenced by the beneficial effect of sea-air—which contains vapor in excess of the amount held by the air generally—in different forms of bronchitis, etc. But it is to insist on the powerful remedial agent which we possess in vapor when judiciously used at the bedside of the patient that is the object of the present paper. On the first appearance of an attack of, say, simple bronchitis, the first system observed by the patient is a feeling of oppression in breathing, "a tight feeling across the chest." This is caused by the proper secretion of the lining membrane of the lungs being partially arrested. The air-cells are in an equal degree incapable of performing their proper functions—namely, the reception of oxygen from the inspired air, and the giving out of carbonic acid gas; the result of which is that the patient has a diminished area of breathing-surface, in proportion to the intensity of the attack. And here I may remark, in passing, that there is an evident necessity in such a case that the patient should have the purest air procurable, to make some amends for the deficient quantity. Now in this stage of the bronchitis, I believe we have no such powerful agent as steam, properly applied. The precise mode of application may be varied to suit different attacks in patients of different ages, and other peculiarities; the great principle being that the steam should be carried with the inspired air into the air-cells, where it not only acts as a substitute for the natural mucous

secretions, but by its soothing action disposes the membrane to resume its normal functions. I have seen an attack of acute bronchitis cut short by these means, almost without any other; while in the different forms of asthma it is found of the greatest service. I put the acute bronchitis first in the list, as I think that it yields to the power of steam more easily than any other form of chest-disease; but it is good in all. And even in chronic bronchitis it is of the greatest service in softening the glutinous sputa, and rendering it much more easy to be got up by the patient, thereby saving time and many coughs, the patient being enabled to get up all his expectoration at the beginning of the night, and thus start, as it were, with a fresh account, instead of being tormented by the small installments frequently due. In phthisis, also, I have found the breathing-in of steam to be of the greatest service in the frequent though often slight attacks of localized congestion, which denote that the disease is placing its grasp upon another portion of the lung; such attacks, if not altogether warded off, being certainly modified in their intensity. I could now give details of many cases in which phthisis appeared to be kept in subjection, each exacerbation of the disease being speedily met and apparently crushed; but I must proceed to give details of the mode of application of the steam. This varies in different patients.

In the case of infants, where the simplest means must be used, I have found nothing to succeed so well as placing a flat and broad vessel at each side of the cot in which the little patient is; these should be kept filled by the nurse with hot water, and the steam from them is caused to ascend and float round the little sufferer, who unconsciously inspires the beneficial vapor. In patients of more mature age the steam may be applied by an ordinary teapot, which being *half* filled with boiling water, and the mouth applied to the spout, the patient may be taught to draw in the steam with his inspirations. At first it may give rise to a little irritation of the mucous membrane, but the patient quickly feels the beneficial effect, and generally perseveres in its use. It is a good plan to put some tea, cinnamon, etc., at the bottom of the teapot, which prevents the insipid taste of the steam from being disagreeable to the patient. I lately had a patient, an overlooker in a cotton factory, who was suffering from chronic irritation of the lungs, evidently arising from the small particles of cotton floating with the inspired air into his air-cells, and there giving rise to his sufferings. I explained to him the action of steam in his case, and he, being of an ingenious turn, put a

piece of elastic tubing, about four feet long, to the spout of the kettle, and after his day's work, regularly sat by his fire inhaling the steam, and in about half an hour was able to get up all the cotton taken in during the day, thereby ensuring a comfortable night's rest, which had been before impossible from cough. Steam may be applied in this way: a small perforation is made in the lid of a common kettle, into which may be soldered a short tin tube bent up at a right angle; attached to this may be a tube of vulcanized india-rubber, of any reasonable length, which may reach over to the bed-side of the patient, and, opening out near the patient's mouth, may during the night keep the air inspired hot and moist. The whole expense of this apparatus is only a few shillings. This plan is adapted for night-work, as the kettle, if filled at bed-time, will furnish steam sufficiently during the whole night. Many other plans may be adopted, and no doubt will occur to the ready mind, but the great object to be attained is to keep the air inspired warm and moist as a powerful curative agent, being one particularly useful in this climate, where diseases of the chest are so common.—*London Lancet.*

LAUDANUM AND TEETOTALISM.—Dr. Alfred Taylor, commissioned by the Privy Council, has sent in a report on the means of committing murder by poisons which are allowed to exist in England. He says that poison enough to kill two adults can be purchased anywhere for threepence; and that the careless dispensing of poisonous drugs is cause of most frightful accidents. As to laudanum, it appears to be sold wholesale, single shops in the Marshland supplying three or four hundred customers every Saturday night. Retail druggists often dispense 200 lbs. in one year, and one man complained that his wife had consumed £100 in opium since he married. It is a mistake to consider the practice confined to the marshy districts. We do not believe there is a town in England where some one chemist does not on Saturday night load his counter with little bottles of laudanum; and we are assured by a wholesale druggist that he could and did sell it in the eastern counties to the extent of some thousands of pounds in a year. This gentleman, an old and keen observer, declared that the demand had sprung up shortly after the introduction of tectotalism, and that it would be found to vary everywhere, in accordance with the progress or decline of the system of total abstinence.—*London Spectator.*

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